

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/DE 03/01810
filed on June 3, 2003.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0001] with the following amended paragraph:

[0001] ~~Prior Art~~ **Field of the Invention**

Please replace paragraph [0002] with the following amended paragraph:

[0002] The invention relates to a piezoelectric actuator, for instance for actuating a mechanical component such as a valve or the like[[,]] ~~as defined by the characteristics of the preamble to the main claim.~~

Please add the following new paragraph after paragraph [0002]:

[0002.5] Description of the Prior Art

Page 3, please replace paragraph [0009] with the following amended paragraph:

[0009] ~~Advantages of the Invention~~

SUMMARY AND ADVANTAGES OF THE INVENTION

Please replace paragraph [0010] with the following amended paragraph:

[0010] The piezoelectric actuator described ~~at the outset is,~~ **above** as noted, ~~constructed with~~
consists of a multilayer construction of piezoelectric layers and in a piezoelectrically active region with inner electrodes located between the layers and is provided with contacting of the inner electrodes that alternates from layer to layer, for subjecting it to an electrical voltage.

There is moreover at least one inactive region, such as a bottom and/or top part, on one end or

even inside the active region, in the ~~region of the~~ total installed length in the layer construction of the piezoelectric actuator.

Please replace paragraph [0012] with the following amended paragraph:

[0012] In an especially advantageous embodiment, in the piezoelectric actuator of the invention, the inactive regions and the active region are made from an identical ceramic basic substance, with additional dopants inserted into the inactive regions. Preferably, the basic substance is lead zirconate titanate (PZT), and the dopant is silver. Silver is advantageous in the sense that ~~silver~~ it is often incorporated into the active region, and the inner electrodes are therefore preferably constructed of AgPd, so that when additional doping with silver is done in the passive region, similar properties are obtained.

Please replace paragraph [0013] with the following amended paragraph:

[0013] With the invention, it is advantageously possible in particular to minimize the tendency of cracking in piezoelectric stacked actuators at the transition from active to inactive regions. This is accomplished primarily in the production process, which directly minimizes the ~~error~~ failure rate. A primary cause of cracking here is that in sintering of the piezoelectric actuator, the ceramic in the region having the inner electrodes shrinks to a different extent than in the region without inner electrodes. This is associated with the fact that chemical elements of the inner electrode diffuse into the ceramic and dope it and thus change the shrinkage properties. The shrinkage mismatch then leads to the damaging mechanical stresses.

Page 4, please replace paragraph [0016] with the following amended paragraph:

[0016] ~~Drawing~~ **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0017] with the following amended paragraph:

[0017] One exemplary embodiment of the piezoelectric actuator of the invention ~~will be~~ **is** described **herein below** in conjunction with the sole figure of the drawing, which shows a section through a piezoelectric actuator with a multilayer construction made up of layers of piezoceramic and of active and inactive regions.

Page 5, please replace paragraph [0018] with the following amended paragraph:

[0018] ~~Description of the Exemplary Embodiments~~

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Page 6, please replace paragraph [0023] with the following amended paragraph:

[0023] The ceramic of the respective passive region B, C is ~~tailor-made~~ **compounded** in such a way that the properties with respect to shrinkage upon sintering, thermal expansion, and elasticity are ideally compatible with the ceramic of the active region A, in combination with the inner electrodes and the resultant interaction.

Please add the following new paragraph after paragraph [0024]:

[0025] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.